

REMARKS

In response to the above Office Action and section 1 on page 2 thereof, this application is the national stage of International Application No. PCT/JP2004/018897 filed December 17, 2004 and priority of three prior Japanese applications was claimed when the International Application was filed. See Notice of Acceptance dated April 26, 2007.

With respect to the objection to the drawings in section 2 and the expression "jetting air" in claim 10, claim 10 has been cancelled.

With respect to the objection in section 3, page 10 has been amended to clarify this description.

With respect to section 4, the description of the drawings has been moved as requested and clarified.

With respect to section 5 and the rejection under §112, second paragraph of claims 6 and 7, these claims have been amended to clarify that the filling process can be a two stage process. See page 15, paragraphs [0064] and [0065] of the specification. With respect to claims 12 and 15, claims 12-15 have been cancelled and replaced by new claims 16-19, respectively.

It is believed the claims now comply with the requirements of §112, second paragraph, and its withdrawal as a ground of rejection of the claims is therefore requested.

In addition, claims 1-9 and 11 have been amended to clarify the invention and to place the claims in more conventional U.S. format. Support for the amendments to claim 1 can be found on pages 10 and 11, paragraphs [0042] and [0043]. Support for new claim 16 can be found on pages 9 and 10, paragraphs [0038] and [0042].

Finally, the Abstract has been amended to comply with M.P.E.P. §608.01(b).

In the Office Action, the Examiner rejected claims 1-4, 12, 13, 15/12 and 15/13, now claims 1-4, 16, 17, 19/16 and 19/17 under 35 U.S.C. §103(a) for being obvious over WO 00/50187, hereafter WO'187 in view of U.S. Patent No. 6,470,953 to Hirata et al., hereafter Hirata.

WO'187 relates to a machine for producing flaskless molds. In the machine, the piston rod 21 and the fifth actuator 22 to move the second squeeze plate 6 are fastened to the right side compression frame 18. The compression frame 18 is fixed to the base frame 1. (See page 6, lines 3-5, and page 7, lines 1-6, of WO'187). Thus, the piston rod 21 and the fifth actuator 22 are fixed to the base frame 1.

In contrast, in the present inventions as set forth in claim 1, the upper and the lower squeeze means and the cylinders to move them rotate together with the pair of the upper and the lower flask and the match plate between the perpendicular position and the horizontal position.

Thus, the present invention can simultaneously carry out the defining process (2) and the rotating and moving process (3), or the squeezing process (5) and the rotating process (6) as set forth in claims 2 and 3.

Thus, compared to the invention of WO'187, the method of claim 1 has a significant effect. Namely, it can reduce the time to produce a flaskless mold set consisting of an upper and a lower mold and can improve productivity.

Moreover, in the present invention as set forth in claim 16 (corresponding to former claim 12), there is provided:

“(1) a unit of an upper and a lower flask each having intakes disposed at their side walls for foundry sand, which flasks are connected to each other by connecting rods so that they can move close to and away from each other, wherein the connecting rods are disposed through protuberances that are disposed at an outer side of both the upper and the lower flask.”

Thus, in the apparatus of the present invention, centerlines of the upper and the lower flask can correspond to each other with high dimensional accuracy by means of the connecting rods. Further, parallelism of the meeting surfaces of the upper and the lower flask can be maintained with high dimensional accuracy by means of the connecting rods.

Thus, the apparatus of the present invention can produce sets of an upper and a lower mold that have a high quality without chipped edges, since the upper and the lower flask are stacked with high dimensional accuracy by means of the connecting rods.

Further, in the invention of claim 16, there is also provided:

“an upper and a lower pair of clamping mechanisms disposed at the upper and the lower lifting and lowering frame for clamping and releasing the upper and the lower portion of the connecting rods.”

Thus, in the apparatus of the present invention, since the clamping mechanisms can clamp the connecting rods before filling the foundry sand into the upper and the lower molding space, the reaction force caused by squeezing the foundry sand can be received by the connecting rods because of the clamping mechanisms. Consequently,

misalignment between the upper and the lower flask can be reduced, and the apparatus can produce sets of an upper and a lower mold that have high dimensional accuracy.

This is not disclosed or suggested by WO'187.

Accordingly, it is submitted that neither claim 1 and claims 2-4 dependent therefrom or claim 16 (former claim 12) and claims 17, 19/16 and 19/17 dependent therefrom are obvious over WO'187. Its withdrawal as a ground of rejection of these claims under §103(a) is therefore requested.

Regarding claims 5-9, 11, 18 and 19/18, these claims depend from either claim 1 or claim 16, so it is submitted that they are not obvious over WO'187 in view of Hirata because Hirata does not teach or suggest what is missing in WO'187 as discussed above.

Finally, with respect to the obviousness-type double patenting rejection over Application No. 10/582,965, attached is a Terminal Disclaimer disclaiming the terminal portion of any patent granted on this application that would extend beyond the terminal portion of any patent granted on that application.

It is believed claims 1-9, 11 and 16-19 are now in condition for allowance.

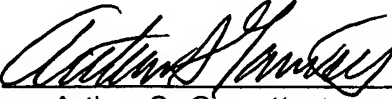
In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: July 23, 2009

By: 
Arthur S. Garrett
Reg. No. 20,338
(202) 408-4091

Attachments: **New Abstract**
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